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Health Care Institutions: Survival in a Changing Environment

Karen W. Tyson, Ph.D., and Jeffrey C. Merrill

Abstract—The health care system in the United States has been altered by recent economic and political events, including a major recession and a retrenchment in federal nonentitlement spending programs. The economic recovery and the continuing high federal deficits prompt new questions about both the future expansion and the distribution of health spending. Long-term economic forecasts and public opinion polls suggest that health will consume a growing share of the national resources. Nevertheless, the level of health spending will not grow as rapidily as in the past, and the distribution of that spending may also change. Because of these changes, the growth in health spending will not guarantee the survival of existing institutions. New competitive forces and revised reimbursement mechanisms will lead to a redistribution of the health dollar, and this redistribution will create both risk and opportunity for America's important health care institutions and their health professionals.

The health care system in the United States is undergoing rapid changes. If health care institutions are to survive, they must be aware of these changes and their implications. To describe and understand the future, economic developments and forecasts, opinion polls, and existing and proposed legislative and regulatory changes must be followed and analyzed.

There are several reasons why these disparate elements are important. The general economic climate (prosperity, inflation, recession) affects the degree to which businesses can afford to provide health care protection and individuals can pay for their own care. The rate of growth of the gross national product (GNP) is a measure of how much the health sector can expand without diminishing the resources available to other sectors of the economy. Additionally, the proportion of the GNP spent for health care has been viewed as a symbol of health care's growing influence on the economy and, in turn, the economy's capacity to support further expansion in health care. Lastly, health care institutions need to understand the forces influencing the rate of inflation, since inflation affects the costs of the goods, services, and labor which these institutions purchase.

Public opinion is also important. Polls can show where "health" falls in terms of national priorities, whether the public perceives a crisis in health costs, and

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where the public stands on specific programs and proposals. An examination of polls that ask the same questions every year is particularly useful in determining whether there are major shifts in public opinion that are likely to alter the political environment.

Finally, changes in public policy must be considered. First, federal spending for health, which represents 10 percent of total federal outlays, is the only area of the federal budget besides defense and income security (that is, Social Security, other federal retirement programs, and welfare) that could be cut enough to make a major difference in the deficit. Accordingly, health programs in the federal budget have become a target for those who believe that high deficits damage the economy and hamper economic recovery. Second, future changes in the laws and regulations governing federal and state health programs, such as Medicare and Medicaid, will affect how institutions manage resources. Third, those same government actions with respect to health programs also have an effect on the private sector.

Forecasts for the 1990s

The Center for Health Policy Studies at Georgetown University in Washington, D.C., has developed a model to forecast several components of health spending in the United States.* Several levels of health spending are forecast, including (*a*) total health spending, which includes all spending for the health care of individuals regardless of the source of payment, government public health activities, administrative costs such as the net cost of health insurance, medical research, and construction of health facilities; (*b*) personal health care spending, a narrower measure that includes only spending for personal health care—such as spending for hospital, nursing home, home health, physician, and dental care; care provided by other health professionals; eyeglasses; medical appliances; and prescription drugs—and omits public health, administration, research, and construction costs; (*c*) spending for hospital care from all sources of payment—government, insurers or other third parties, and the individual; (*d*) spending for physician services from all sources of payment.

The model, using assumptions discussed below, forecasts that total health spending will reach $1.9 trillion (13.8 percent of the GNP) in 2000, up from $322 billion (10.5 percent of the GNP) in 1982. Total health spending will increase at an average rate of 10.3 percent per year between 1982 and 2000, while spending for hospital care will grow an average of 11 percent per year. Expenditures for physician services will grow at an average rate of 9.9 percent per year. Total health spending will also rise substantially in real terms (that is, after accounting for inflation): 4.7 percent per year between 1982 and 2000 (Table 1).

The model on which these forecasts are based emphasized supply factors as the major determinants of health spending. The supply of hospital beds, the supply of medical specialists relative to population, and real construction spending for health facilities were used to forecast total health spending, personal health care spending, and spending for hospital services. The supply of physicians relative to population, physician prices, and health insurance coverage were used to forecast spending for physician services. The importance of supply factors as determinants of health spending is corroborated by the authors' own research and by a

* Technical details of the forecasting model are available from the authors.

TABLE 1

Forecasts of Health Care Spending in the United States, 1982–2000, According to Center for Health Policy Studies

Spending Category*	Spending (Dollars in billions)			Average Annual Real Rate of Growth† (In percent)	
	1982	1990	2000	1970–1982	1982–2000
Total health expenditures	322.4	744.6	1,880.2	5.5	4.7
Personal health care expenditures	286.9	665.7	1,685.7	5.7	4.7
Expenditures for hospital care	135.5	332.2	883.9	6.6	5.3
Expenditures for physician care	61.8	133.7	336.4	5.5	4.3

* For definitions, see text.

† Inflation is measured by gross national product deflator.

recent study by McLaughlin and colleagues that found supply factors more important than regulatory or competitive conditions in explaining variations in spending for hospital care in local areas (1). The projections in the present paper are based on the assumption that the rate of inflation, as measured by the GNP deflator, will be 4.9 percent per year between 1985 and 1990 and 5.6 percent per year between 1990 and 2000. (The GNP deflator is a more comprehensive measure of inflation than the more familiar Consumer Price Index (CPI) and reflects the components of the health sector better than the CPI. In addition to consumer goods, this deflator also includes inflation in capital goods and in government production.) These rates of inflation are down somewhat from inflation during the 1970s (6.9 percent per year). It is also assumed that the real gross national product (adjusted for inflation) will grow approximately 3 percent per year between 1985 and 1990 and 2.7 percent per year between 1990 and 2000. The economic assumptions are within the range of most private forecasters and the projections of the Social Security trustees (2).

Real health spending, according to this analysis, will grow substantially faster than the GNP (Figure 1). Thus, the analysis points to continuing expansion of the health sector, even relative to the expected growth in the rest of the economy.

Economic and Political Factors

A forecast of continued expansion in the health sector may be surprising considering current developments. The furor over the recession, corporate concerns about high health care costs, and anxiety over the Medicare cost crisis imply that the health sector may actually shrink in the future. Thus, a statistical forecast should be examined in light of the less quantifiable economic and political forces influencing the health sector. However, even given such an examination, the economic and political climate does not argue for any revisions in the statistical forecasts made here.

First, the state of the economy will not act as a deterrent to the expansion of the health care sector. Even during the worst recession since World War II, health care spending still increased at double-digit levels during 1981 and 1982. Health spending has become a major force in the economy. The nearly six million people employed in the health care business, capital investment valued at over $110 billion for community hospitals alone, and the numerous other industries serving the

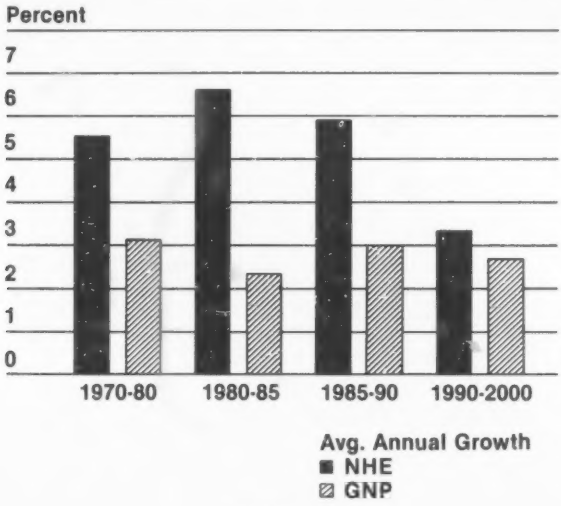

FIGURE 1
Growth in total real national health care expenditures (NHE) compared with growth in real gross national product (GNP), according to forecasting model of the Center for Health Policy Studies, 1970–2000.

health sector all contribute to a $350-billion industry so vast that it has a momentum of its own (3, 4). The same businesses that are concerned about their own health costs often have a stake in supplying the health industry. Investors favor the health industry for its growth possibilities, not for its ability to contain costs. State and local governments that have issued bonds to expand hospitals are concerned that these hospitals have enough revenue to pay off the bonds. Thus, with major corporations, the stock and bond markets, and city and state governments holding economic stakes in the current system, aggressive action to restrain its growth is unlikely.

Moreover, the crisis in health care costs reported in the news media has not led to a great public outcry to control costs. Rather, public attitudes toward the health care system remain shifting and often contradictory. For example, there was a conservative tide in the late 1970s, when concerns over inflation, crime, and other "conservative" issues were mentioned by respondents more often than such "liberal" concerns as high unemployment. Recently, that trend was reversed (Figure 2). It should be noted that more "liberal" periods are associated with a public preference for greater government spending. In addition, despite changes in the public's overall attitudes on political matters, the public continued to believe that health care was an important national priority—more important than the environment, urban problems, defense, racial equity, or welfare (Figure 3).

Public opinion is particularly contradictory when the public's opinion of the health system in general is compared with its views on its own medical care and expenditures for health. While two-thirds of Americans believe that the health care system requires either fundamental changes or complete restructuring (5), a majority of the persons polled report

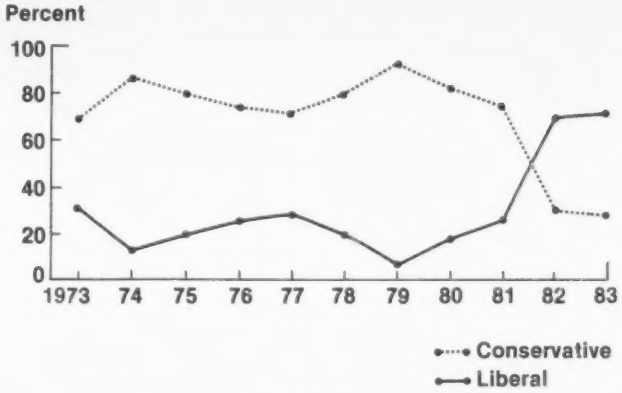

FIGURE 2

Percent of respondents identifying "liberal" versus "conservative" concerns when asked to identify the United States' most important problem, 1973–1983 (based on annual Gallup polls, 1973–1983).

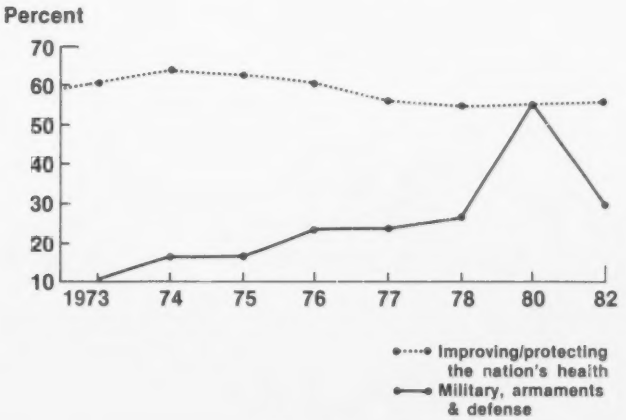

FIGURE 3

Percent of respondents believing that the federal government spends too little on "improving and protecting the nation's health" and on "the military, armaments, and defense," 1973–1983 (source: reference 11).

complete satisfaction with the out-of-pocket cost of their own medical care (6). Further, while there is some support for national health insurance for the unemployed (59 percent favor a program similar to Medicare), this support evaporates if it means that people would pay higher taxes or insurance premiums to cover the cost (53 percent oppose paying more). Thus, there does not appear to be any unified outcry either for a reversal in the growth of the health system or for more growth.

The future political environment contains competing forces which are likely to offset each other; thus, legislators are un-

likely to force a contraction in the size of the health care system. Because cutting programs such as Medicare and Medicaid involves explicitly removing benefits to which the beneficiaries are legally entitled, it is much more difficult politically to make major changes in them. In addition, public opinion does not appear to support further cutbacks in discretionary health spending. There is a high correlation between the percentage of the public that believes the nation is spending too little on health and real federal spending on discretionary health programs (Figure 4). Based on this comparison, possible support for an increase in health spending rather than a decrease can be seen.

If the record of the past few years is any indication, effective action to reduce the rate of growth of health spending, whether in the political arena or in the marketplace, is unlikely. The new Medicare system of prospective hospital reimbursement by diagnosis related groups (DRGs) will probably not reduce health spending substantially. Hospitals will quickly learn how to use the system to maximize reimbursement. In addition, any reduction in cost to the federal government as a result of the DRG plan may merely be shifted

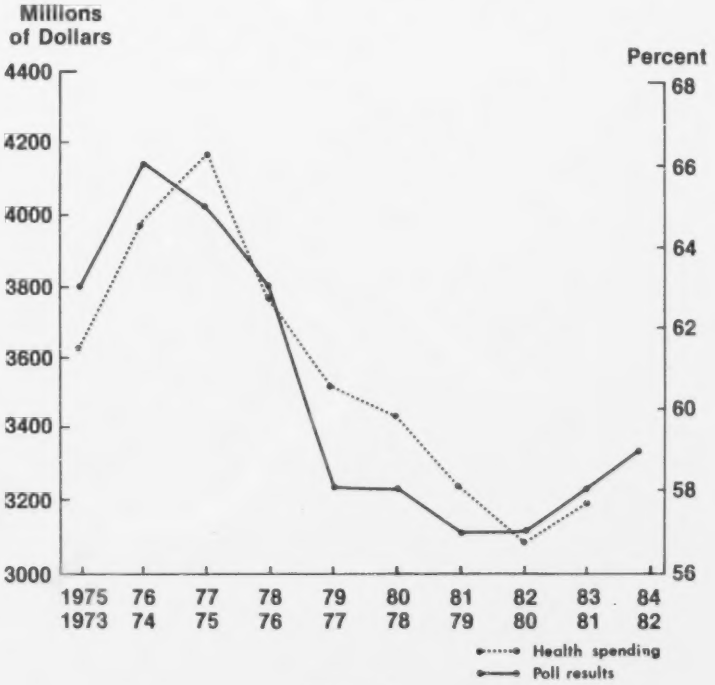

FIGURE 4

Real spending on discretionary health care programs by the federal government compared with the percent of respondents saying (two years earlier) that the nation spends too little on health care, 1975–1984 (the top row of years refers to government spending and the bottom row to the public opinion poll; sources: reference 11 and annual editions of *Budget of the United States Government).*

to other payers or result in other forms of care. Even the substantial threats to the future solvency of the Medicare program are being met by proposals from the Advisory Council on Social Security and Congress to raise taxes or force beneficiaries to pay more rather than to cut benefits.

There are, however, some factors competing against the tremendous momentum of the health care system. These will not arrest the growth but, as the authors' projections indicate, are likely to reduce it below historical levels. For example, corporations are concerned about their own health care costs, and unions have less bargaining power than in the past. Thus, corporations are likely to look to alternative systems such as preferred provider organizations (PPOs) or to encourage greater use of health maintenance organizations (HMOs). Employees are also likely to be required to pay more through higher premium shares, deductibles, and coinsurance.

In addition, the projected increase in the number of physicians will have an effect on the marketplace. The need to compete for patients may force physicians to consider salaried positions or preferred provider arrangements which would have been unacceptable to them in the past and will possibly contain costs by lowering fees or reducing hospitalization. Nevertheless, so far, physicians are finding ways—such as the use of advertising and other marketing techniques, increased testing and consultations, increased preventive care, and billing separately for as many services as possible—to avoid reductions in their income (real net income for physicians actually increased in 1982).

Finally, concerns over the federal deficit may result in some reduction in the growth of federal health spending. If the new Medicare payment system fails to generate savings for the federal government, other cost-containing measures may be instituted. In any event, the government is unlikely to launch any new initiatives to cover other populations or to expand benefits without strict cost controls.

Thus, economic and political factors appear to be either supportive or neutral toward future expansion of the health care system. However, as discussed below, these factors may point toward changes in how spending is distributed.

Academic Health Centers

On the surface, the authors' forecasts represent good news for health care institutions. The health sector will indeed continue to expand, although not as rapidly as in the past. However, how health dollars will be spent and who will get them is likely to change. Thus, planning is critical if health institutions are to flourish in a changing environment.

Changes are already apparent. First, support for academic health care institutions in the forms of state and local subsidies, federal research grants, tuition, and fees is undergoing changes. Second, the attempts of medical schools to meet declines in direct support by increasing medical service revenues make them particularly vulnerable to changes in the structure and financing of health services.

While overall government spending for health will continue to grow, the areas and the sources of increased spending are not necessarily those likely to benefit traditional health care institutions such as academic health centers. Given the growing burden of providing services to individuals as a result of Medicare, Medicaid, and Veterans Administration programs, the federal government cannot be relied on to fund new investment in health in-

stitutions. Discretionary funding for health services has already been cut substantially, and there is no reason to expect a reversal of this trend. The best that academic health centers can hope for is a leveling off in such spending.

The decrease in discretionary spending will manifest itself in a number of ways. For example, the concern over an expected oversupply of doctors is ending sources of direct discretionary funding for medical education (for example, capitation grants). As part of that same trend and in response to the funding crisis in the Medicare Trust Fund, direct and indirect support for medical education through third parties may become more restricted. Also, there is some question about how far tuition can be raised to provide continued support. In 1983 alone, the average tuition went up by 18 percent (7).

Many academic health centers are already beginning to respond to these changes by relying less on traditional funding sources and more on reimbursement for patient care. According to an American Medical Association (AMA) survey, U.S. medical schools received 29.7 percent of their revenues from medical service in the 1981–82 academic year, up from 12.2 percent in 1970–71 (7). Financing through patient care revenues will become increasingly important to the medical schools in the years ahead.

In the area of research, where the federal government has been a major source of support for academic medical centers, the picture is much the same. An unpublished study by the authors of the present paper indicates that federal support for research and development in the health field will grow only slightly faster than the rate of inflation, at about 5.9 percent per year between 1982 and 1990. However, industry support for health research and development over the same period will grow at an average of 12.3 percent per year, and industry will be a larger funder in this area than the federal government by 1990. Industry support of university-performed health research and development grew by a substantial 17 percent per year between 1974 and 1982 (8, 9). (This shift in funding implies that basic health research will decrease, while applied research will expand.)

Private foundations, which also have been a major source of funding for investment in health care in the past, are already slowing the rate of that investment. Foundation spending in the health field grew only 5.1 percent per year between 1975 and 1980, considerably less than the rate of inflation (10). This trend will also probably continue in the future.

Access to capital for renovation and expansion of facilities may become more difficult. Debt financing already represents a growing source of funds for plants and equipment. Over the last five years, borrowing has risen from 6 percent to 16 percent of funds obligated for capital assets (7). Hospitals will increasingly be forced to compete in the bond market against the vast borrowing needs of the federal government and against other industries that will want to expand if the recovery becomes more secure. Further, limits on capital reimbursement under Medicare are scheduled for 1986, a time when hospitals may need to renovate facilities that were built during the 1950s and 1960s when the Hill-Burton program stimulated hospital construction.

Other payers may also limit either overall capital spending or the amount of debt financing. Thus, institutions (particularly proprietary facilities) with sufficient equity to finance expansion will clearly have an edge.

Also foreseen are major changes in the

structure of the health care delivery system. The "corporatization" of health care is proceeding at a quick pace. For example, the DRG system of reimbursement in the Medicare program creates a whole new system of incentives that are attractive to for-profit institutions. Academic health centers will find themselves competing with proprietary hospitals that believe they can now be profitable in some of the areas that were considered the private domain of teaching hospitals. For example, bypass surgery, which has a high DRG price, may prove to be very profitable for private institutions, which will then compete with teaching hospitals for those patients. Alternative delivery systems, such as HMOs and PPOs, set up to cut costs and/or realize profits will compete for patients. Competition, whether effective in containing costs or not, will nevertheless affect the role and market share of academic health centers.

The growth in the physician population may not lead to the competition—and resulting lower price—that some hope for. Indeed, there is every reason to expect a continued rise in expenditures for physician services. However, the distribution of expenditures will change, as will the relationships between physicians and health care institutions. That is already apparent in the growth of independent urgent care centers as well as in the development of ambulatory "surgicenters." In addition, shifting will occur in how spending on physician services is allocated among specialist groups, between younger and older physicians, and between independent practitioners and those who remain hospital-based.

Moreover, there is an increasing movement away from the hospital as the centerpiece of the health care system. Prospective payment and concern over costs in general are leading to more emphasis on getting people out of the hospitals and into nursing homes and home health care. Thus, very few traditional institutions will survive by refusing to change. While these changes may not dramatically alter overall health expenditures, they will certainly redistribute the funds that are spent.

Present and expected developments suggest that the remainder of this decade will be a period of instability and challenge to America's medical institutions. The winners are likely to be those that can respond rapidly in terms of emphasizing additional services, that have access to capital, that can find growing sources of funding such as private sector research grants, and that are able to select patients and physicians according to specific marketing and revenue objectives. The losers are more likely to be institutions that cannot shift costs from Medicare and Medicaid to private insurers because of their disproportionately small share of privately insured patients, those that continue to rely on traditional sources of support—such as government operating subsidies, federal research grants, and tuition and fees—for education and research, and those that cannot respond quickly and aggressively to changes in the health care marketplace. Keeping one step ahead of the changing environment is the most likely way medical institutions can survive and benefit from the continuing expansion of the health care sector.

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COMMUNICATIONS

Academic Origins of Medical School Applicants And Entrants, 1980–1982

Gwendolyn L. Lewis, Ph.D.

The national marketplace for medical personnel is currently affected by changes in both the demand for and supply of physicians. An oversupply is projected in some specialties, while a continued need is anticipated in others, but primarily in geographic locations previously not popular with physicians. Under these circumstances, the recruitment to the profession of a sufficient number of highly qualified candidates from diverse backgrounds is a concern shared by many in medical education. This concern focuses attention on the current suppliers of medical school students and their capacity to furnish well qualified candidates.

Medical school admissions information by broad classes of undergraduate institutions has not been readily available. An article in the *Journal of Medical Education* (1) named the undergraduate institutions supplying the most first-year medical students and having the highest entrant/applicant ratios in 1973. Although this information was useful, it did not present a complete picture. Since then no further studies have been reported.

In the present article two aspects of the national marketplace of medicine—the academic origins of candidates for medical careers and the success of different types of institutions in placing candidates in medical schools—are assessed. Information for the three most recent years from two sources are merged: Association of American Medical Colleges data on the applicants and matriculants at U.S. medical schools from U.S. undergraduate institutions in academic years 1980, 1981, and 1982, and National Institute of Independent Colleges and Universities data on institutional characteristics for academic years 1979, 1980, and 1981, including individual Carnegie Commission on Higher Education classifications of undergraduate schools and yearly graduation figures. Colleges and universities are designated as belonging to a particular Carnegie Commission category on the basis of the structure of the institution, the numbers and types of schools and degrees granted, and the institution's degree of selectivity in choosing entrants (2). Two-year and foreign institutions named as the primary ones attended by applicants were deleted from study. The remaining institutions constituted 88.6 percent of those named by medical school applicants and represented 97.2 percent of the applicants to medical school in the three years.

Undergraduate institutions are categorized by the Carnegie Commission as follows: Research Universities I (the 50 leaders in federal support, awarding at least 50 doctorates a year); Research Universities II (the next 50 leaders in federal support or among the 60 leaders in Ph.D.s awarded); Doctoral Granting Universities I (others awarding 40 or more doctorates in at least five fields or receiving $3 million in federal support and producing 20 doctorates in five fields); Doctoral Granting Universities II (others awarding at least 20 doctorates or 10 doctorates in at least three fields); Comprehensive Colleges and Universities I (other institutions offering a liberal arts program and at least two professional or occupational programs and enrollment of at least 2,000 students); Comprehensive Colleges and Universities II (the remaining institutions with a liberal arts program and at least one profes-

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sional or occupational program, enrolling, if private, at least 1,500 students and, if public, at least 1,000 students); Liberal Arts Colleges I (colleges with a liberal arts program only and with an estimated average combined SAT score above 1,030); Liberal Arts Colleges II (other liberal arts colleges); Professional Schools and Other Specialized Institutions (those with specialized primary purposes and located on self-contained campuses); and Nontraditional Schools (those not otherwise classified, usually without a campus).

Results

The academic origins of all bachelor's degree recipients and of applicants and entrants at medical schools are given in Table 1. Six institutional types together supplied 64.9 percent of the bachelor's degrees, 69.3 percent of the applicants, and 70.8 percent of the medical school entrants: public and private research universities I, public and private comprehensive universities and colleges I, public research universities II, and private liberal arts colleges I. While medical school applicants and entrants came from all types of undergraduate academic backgrounds, the relative contributions of each varied considerably. Private institutions, particularly the research universities I and II and liberal arts colleges I, provided disproportionate numbers of both applicants and entrants when compared with the numbers of bachelor's degrees awarded by these institutions.

One measure of how successful different types of institutions are in placing their students is the percentage of their applicants matriculating in medical school. For the three years studied, that percentage was 46.8 for all institutions. It was generally higher for private than for public undergraduate institutions. The top rates were found in private research universities I and II and in private liberal arts colleges I (61.8, 54.0, and 52.1 percent, respectively). All other types of institutions had rates below 50 percent. To further control for size differences among the Carnegie Commission types, the author compared the ratio of medical school matriculants in the three years to the bachelor's degrees conferred in the three preceding years at each type of undergraduate institution. Overall, matriculants were 1.8 percent of the bachelor's degree recipients. Again, private schools produced proportionately more than public schools. Higher medical school matriculation rates occurred mainly from the private undergraduate institutions with the same three leaders (8.4, 5.9, and 4.7 percent, respectively). The average rate of success was less than 3 percent for all other types.

Conclusion

The disproportionate success in entry to medical school of students graduating from some types of colleges and universities most likely results from a combination of student abilities, academic program quality, family financial and social support, career expectations, and academic and career advising programs. In addition, because funding at most medical schools is tied to the number of state resident entrants, students desiring to go to medical school gravitate toward those undergraduate institutions that will be regarded well in their home states—locally, regionally, and nationally recognized schools. A recent analysis of students' undergraduate grades and Medical College Admission Test scores supported the idea that the greater success in admission of students from some types of institutions stems from the students' differing abilities and preparation (3). However, high scores among those accepted have not been found to be good predictors of medical school performance, professional behaviors, or career choices.

The information reported here on the undergraduate academic origins of applicants and entrants to medical schools may be useful to policymakers, premedical advisers, and medical schools. Those interested in the changing marketplace can use the information to determine additional future sources of students and to decide, in conjunction with other data, how a shift from one type of supplier to another might affect the physician population. Premedical advisers can compare their own institution's record with that of similar institutions to decide what further information about their institutions to communicate to medical schools. Each medical school sets its own admissions policies, based partly on its assessment of the quality of the preparation provided by each undergraduate school. The

TABLE 1

Relationship of Type of Public and Private Undergraduate Institution to Medical School Application and Matriculation*

Type of Undergraduate Institution†	Percent Distribution of Population						Ratios (Percent)			
	Bachelor's Degrees 1979–1981 (n = 2,708,229)		Medical Applicants 1980–1982 (n = 102,535)		Medical Matriculants 1980–1982 (n = 47,997)		Matriculants to Applicants		Matriculants to Degrees	
	Public Undergraduate	Private Undergraduate	Public Undergraduate	Private Undergraduate	Public Undergraduate	Private Undergraduate	Public Undergraduate	Private Undergraduate	Public Undergraduate	Private Undergraduate
Research I	13.7	3.2	17.8	11.6	17.8	15.4	47.0	61.8	2.3	8.4
Research II	9.7	1.7	10.8	4.8	10.7	5.6	46.5	54.0	2.0	5.9
Doctoral I	8.5	2.8	6.8	4.1	6.6	4.3	45.1	49.2	1.4	2.7
Doctoral II	3.5	1.0	2.2	1.3	2.1	1.2	44.0	45.9	1.1	2.2
Comprehensive I	26.8	8.0	12.5	8.2	10.2	7.4	38.2	42.4	0.6	1.6
Comprehensive II	4.2	4.0	1.5	3.4	1.0	4.1	31.2	42.5	0.4	1.3
Liberal Arts I	‡	3.5	‡	8.4	‡	9.3	‡	52.1	‡	4.7
Liberal Arts II	0.3	5.8	0.2	4.8	0.2	3.8	43.9	36.9	1.2	1.2
Specialized	2.0	1.3	1.0	0.4	0.9	0.3	40.6	32.1	0.8	0.4
Total	68.7	31.3	52.8	47.0	48.6	51.4	43.8	50.2	1.3	2.8

* Numbers for each cell of the table are available from the author.

† For definitions, see text.

‡ No institutions in this category.

information provided here can be used to examine their admissions practices against the national patterns to decide whether new evaluations of specific types of undergraduate institutions could help increase diversity among their students. An interchange fostered between undergraduate and medical schools could lead to a more dynamic evaluation of undergraduate preparation and possibly a greater breadth of types of prospective medical students.

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Concordance of Medical School Course Grades And NBME Parts I and II Examination Subject Test Scores

Janice P. Murphy, M.D., G. Craig Rosevear, and Nancy E. Gary, M.D.

Since course grades and subject test scores on examinations of the National Board of Medical Examiners (NBME) are both measures of knowledge acquired by medical students, a statistically significant relationship should exist between them. The purpose of the study reported here was to determine the degree of concordance between medical school grades and subject test scores of the NBME Part I and Part II examinations. Anatomy was not included in this study because gross and developmental anatomy, histology, and neuroanatomy are separate courses, the content of which is tested by one NBME subject examination.

In this report, NBME subject test score refers to the results of the twice annually administered NBME certifying examination (both parts I and II). The term miniboard test score refers to a subject examination obtained from and graded by the NBME for the purpose of testing students' knowledge in a single subject and usually administered at the end of a clinical clerkship or course. These latter examinations consist of questions from previously administered NBME tests. Consequently, courses using miniboard test results as a component of grading should show a stronger relationship between grade and NBME subject test score than courses that do not use miniboard tests. This relationship was also examined.

Methods and Results

The 469 students who were graduated from the University of Medicine and Dentistry of New Jersey-Rutgers Medical School in the classes of 1979–1983 formed the study group. Passage of the NBME tests parts I and II were not a requirement for promotion or graduation. An honors-pass-fail grading system is used. The exclusion of individuals who initially recorded an incomplete grade and student transfers into the school account for varying numbers of students in the groups analyzed. Since the investigators looked only at graduates, data on those who failed courses were not analyzed.

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ing the "halo effect," where the student's motivation and attentiveness may preclude identification of marginal knowledge; the student's ability to gather and present data not being a reflection of basic biomedical information; and faculty concern that a poor grade may be thought to reflect negatively on them. Additional reasons for this weak correlation may include the assignment of considerable weight to clinical skills, the relatively subjective assessment of knowledge by essay and oral tests, and the intrusion of personal bias into grading.

In conclusion, there is a positive correlation between NBME subject test scores and course grades. The degree of correlation suggests that faculty members are not "teaching to the boards." Basic science courses using a miniboard test score as part of the final grade did not have a stronger statistical relationship of grade to NBME subject test score than other courses. On the other hand, the clinical departments that minimized or excluded objective assessments of knowledge in determining course grade had the weakest correlation between grades and Part II NBME subject test scores.

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Faculty Development in Family Medicine: A Survey of Needs and Resources

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The expansion of family medicine training during the last decade brought many clinically competent physicians into academic medicine. Faculty development programs were also introduced to help physician-teachers improve their competence in essential academic skills. The purpose of the authors in this study was to assess the current status of faculty development programs in departments of family medicine.

Methods

All university-affiliated departments of family medicine in the United States and Canada (n = 180) were identified from lists provided by the American Academy of Family Physicians and the College of Family Physicians of Canada. A short questionnaire was mailed by the authors to the heads of those departments or directors of residency programs in family medicine in late 1981, and there was a postcard follow-up in early 1982.

Results

A total of 115 questionnaires (64 percent) were returned for analysis.

Respondents indicated perceived needs in faculty development by rating a list of clinical and academic areas on a 5-point scale, with high priority = 5, medium priority = 4, low priority = 3, sufficient skills already available = 2, and not relevant = 1. The areas of teaching/supervision and epidemiology/research received the highest average priority rating for faculty development. Geriatrics and family dynamics were third and fourth, respectively. Table 1 shows the areas rated and the distribution of responses.

In response to questions about available

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TABLE 1

Percentage of Family Medicine Department Heads and Directors of Family Medicine Residency Programs Responding to Question Concerning Perceived Needs in Family Medicine Faculty Development by Clinical and Academic Areas, 1982*

Area	Percent Giving Priority Rating†			Mean
	High	Medium	Low	
Teaching/supervision	55.3	29.8	14.9	4.32
Epidemiology/research	51.3	23.9	24.8	4.14
Geriatrics	31.3	43.8	25.0	3.93
Family dynamics	30.1	40.7	29.2	3.78
Administration	9.8	53.6	36.6	3.58
Obstetrics	17.9	27.7	54.5	3.21
Psychiatry	6.3	34.8	58.9	3.11
Pediatrics	14.2	19.5	66.3	3.03
Emergency medicine	5.3	30.1	64.7	2.97
Internal medicine	13.4	15.2	71.5	2.87
Surgery	2.7	13.4	84.0	2.73

* Sample size ranged from 112 to 114 respondents.

† Needs were rated on a 5-point scale, with high priority = 5, medium priority = 4, and low priority = 3. Sufficient skills already available = 2 and not relevant = 1 were also included in the low priority category in the table.

resources, most respondents reported local expertise was available to meet their faculty development needs. Twenty-seven respondents reported insufficient local expertise, however, particularly in teaching/supervision ($n = 16$) and epidemiology/research ($n = 11$). Respondents were asked to translate the faculty development methods available to faculty members in their department into dollars. Estimates of the amount available ranged from zero to $10,000 per faculty member, with a median figure of $1,000.

The most popular methods of faculty development were short-duration activities such as local workshops, invited speakers, or workshops at national meetings. The median estimate of the percentage of faculty members who had participated in short-duration activities was 90 to 100 percent per department. Faculty development was also accomplished by faculty members participating in various projects (for example, curriculum development) and consulting with experts in such fields as teaching/supervision and research and by the institutions granting faculty members unscheduled time for self-development and encouraging enrollment for additional degrees. "Seed" grant funds, journal clubs, participation in research projects, and writing articles reviewing published research on selected topics were cited by respondents as methods used to increase faculty members' research skills.

Respondents were asked to rate their likelihood of using various faculty development methods in the future. Support for travel to courses, conferences, and meetings was rated "very likely." Departmental workshops and invited speakers were rated "somewhat likely," while faculty exchange programs with other departments were rated "somewhat unlikely." Respondents were also asked to rate the options "grant four-months leave" and "grant one-year leave" to faculty members for participation in one semester or one-year intensive study or fellowship programs; both alternatives were rated "somewhat unlikely" to "not possible."

Discussion

Faculty development programs will be more effective when needs and resources are considered in deciding their content, format, and the follow-up activities which will promote con-

tinued change in faculty members' competencies (1). Family medicine department heads and directors of family medicine residency programs in the study reported here perceived a need for faculty development. The areas of teaching/supervision, epidemiology/research, family dynamics, and geriatrics were rated "high priority" by at least 30 percent of the sample. Local expertise was usually available to meet these needs, although it was most often reported lacking in the areas of high priority.

Departmental preferences for short-duration faculty development activities suggest time is a more important constraint than money. This lack of time is a major challenge to effective faculty development programs. Faculty members need time to reorient their thinking and to master the complex skills in the areas of research, teaching/supervision, and family dynamics. Appropriately "packaging" the faculty development activities can reduce the constraint of time. For example, total hours may be spread over a longer period, and intensive workshops may be combined with subsequent short training sessions.

Faculty members must also be motivated to give their own time for faculty development activities. Motivation is affected by how the activity is promoted; for example, learning a new approach is more attractive than remedial work to correct deficient performance. Motivation is also influenced by the results of participation. Letters of support for promotion and tenure and occasional comments on improved performance are important but insufficient. Also, the setting must be receptive to the changed skills of the faculty members. Discussions between faculty members and their directors or heads can be used to ensure that the individual's development efforts can contribute to the unit or department.

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Cost of Residents' Decisions On Actual Patients and in Simulated Encounters

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Physicians vary substantially in the quantity of ancillary services they order for their patients, resulting in very different costs of care for the patients (1–5). Identifying, explaining, and changing the ordering habits of physicians who order many ancillary services are becoming important cost containment goals. Educators and researchers have used written patient management problems (PMPs) to simulate real life clinical situations. PMPs measure physicians' data-gathering and management decisions and may also be used to calculate the cost of those decisions. It is assumed that physicians vary on their written PMP ordering costs just as they do with real patients, but the scarcity of comparative practice data has made it difficult to validate this assumption. If the assumption is correct, PMPs could be useful

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